

**ABSTRACT**

5           A sample and hold circuit is disclosed that provides longer hold times. The  
sample and hold circuit can be used in a disc drive to provide improved read-to-write and write-  
to-read mode transitions. The sample and hold circuit has an input and an output, and includes at  
least one capacitive element for retaining a charge. The capacitive element is connected to a  
node between the input and the output. The sample and hold circuit includes at least one input  
10 switch to selectively connect the capacitive element to the input and at least one output switch to  
selectively connect the capacitive element to the output. In addition, an amplifier is connected to  
the node and has an offset voltage. In this manner, a voltage drop across at least one of the input  
and output switches is limited to the offset voltage.

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